

Xenakis' Strategies for Implementing Musical Immersion onto Listeners

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Abstract: *The aim of this paper is to describe Xenakis's ways of implementing his music immersion. The literature overviewed indicates that the concept of immersion, which is so important to the contemporary audio-visual art, implies a state of deep mental involvement in which the person's experience disassociates from the consciousness of the physical world due to an alteration in their attention state. Moreover, the concepts of "participation", "absorption", "total immersion", and of a work – opus absolutum et perfectum are described as tools used by Xenakis to implement his sounds onto listeners.*

Key-words: *aesthetics, music, immersion, Xenakis*

1. Literature Review

At first, we are explaining the way we understand the concept of immersion, which is so important to the contemporary audio-visual art. The concept, that intuitively seems to be closest or very close to the concept of immersion – at least on the aesthetic level, because the term itself is used in many disciplines of sciences and humanities – is *participation*. We regard as very significant that in one of her works on immersion, Christina Grammatikopolou practically doesn't use this notion (i.e. immersion) at all, but instead, she very often talks about participation. It also reminds us of the well-known fact that in the twentieth century, artists stopped treating a piece of art as "sanctified object", turning to what she calls "ritual of art experience" (Grammatikopolou 2016, 41–42): "The public's role was not just to see and 'worship' the art object; people had to become part of the 'ritual' and the creative process of art making. Through participation, the experience of art unfolds within a broader life experience. Instead of maintaining a critical distance from the artworks, people are expected to intervene in them." (Grammatikopolou 2016, 42)

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As we know, many critics objected to this status of art and manifested their doubts – one of the most important of them was Theodor Wiesengrund Adorno. Nevertheless, changes in aesthetic thinking were inevitable – especially after the development of the digital revolution and the globalization of art, disseminated through the medium of the Internet. The contemporary “museum” – we understand it metaphorically here (and also in accordance with its original name – *mouseion*) as, first of all, place where the recipient meets art and, second, as the way in which he or she contacts this art – looks completely different than before. These changes were slowly initiated by the Great Avant-garde of the interwar period. Grammatikopolou replaces the word “museum” with the word “laboratory” (Grammatikopolou 2016, 42), and points that its function of careful preservation and protection of art against threats becomes less and less important. We mean both threats in a completely practical as well as symbolic dimension – for example, the threat of depreciation, misunderstanding, misinterpretation, inappropriate approach to the work. Haven’t we been defended against these threats, for many decades, by exhibition curators, who carefully describe each work of art? Or concert announcers, telling us what exactly we are going to hear and how we should listen to the music? Instead of this way of communing with the art, Grammatikopolou proposes a vision of “breathing with the art”, which expresses her total approach to immersion (Grammatikopolou 2016, 41–56). The very metaphor of breathing, thanks to its physiological nature, fits very well with the root sense of immersion, which means literally immersing yourself in something, being completely absorbed by something.

In psychology, the idea of immersion goes further to the multiple levels of neuro-psychological involvement, about expressing prominence associated to natural and real expression and, also, to the sense of being surrounded which brings some ambiguity to understanding the term. Murray described the concept as

“a metaphorical term derived from the physical experience of being submerged in water. We seek the same feeling from a psychologically immersive experience that we do from a plunge in the ocean or swimming pool: the sensation of being surrounded by a completely other reality, as different as water is from air, which takes over all of our attention, our whole perceptual apparatus.” (Murray 2017, 99)

So, immersion is not only the result of the intensity of the sensory stimulation while it could be delivered with a restricted amount of sensory input (i.e. books)

but involves attention being argued that “immersion is purely an objective property of the technology or the system that facilitates an experience.” (Slater and Wilbur 1997, 603–616; Slater 2003, 1-5)

Berg (2009) in his paper “The Contrasting and Conflicting Definitions of Envelopment,” presented at the 126th Convention of the Audio Engineering Society admitted the complexity of the term stating that “in addition to sound, other modalities contribute to immersion and that immersion is something more complex than just a listener being surrounded by any kind of sound(s).” Still, the term *immersion* is confused with other terms such as *envelopment* in acoustic applications and audio-visual experiences not sensing that unlike envelopment, immersion embraces a number of cognitive factors and is centred on an integrative frame of mind. Moreover, Agrawal et al. (2019, 404) stated that “monophonic reproduction of one’s preferred music can deliver an immersive experience but would not be reported as being enveloping,” but reflective and inspirational.

2. The Idea of “Immersion” at Iannis Xenakis

The idea of “total immersion” is often applied to the works of Iannis Xenakis. In the last two decades, this has been done by, inter alia, Simon Emmerson (Emmerson 2017, 15), Michael Fowler (Fowler 2017, 88), Holly Rogers (Rogers 2013, 32) or Tom Service (Service 2022, 85), and, in particular, by the authors of the “Total Immersion” Days event, which took place at the Barbican Center in London in 2009, and which was dedicated to Karlheinz Stockhausen, Tristan Murail and Xenakis (see Wheatley 2009, 56–59). Writing about this event, John Wheatley emphasizes Xenakis’ fascination with architecture, in particular with the ideas of Le Corbusier (Wheatley 2009, 58). As Wheatley mentions:

“he rapidly invented his own musical sphere, convincing himself that, although architecture is homogeneous, incorporating line and smooth shape which can merge perfectly, the musical dimensions of pitch and time were only connected by strict “ordering structure”, seriously requiring a fundamental re-think. The hyperbolic parabola of his Philips Pavilion then encouraged him to crystallize an innovative musical inspiration, based largely on the sliding glissando, enabling his music to be expressed radically, “without breaking its continuity”. Smooth architectural stability – and three-dimensional drama – had unexpectedly been converted into the world of music!” (Wheatley 2009, 58–59).

However, the fascination of Xenakis with architecture, while it may potentially justify the perception of his music as a phenomenon which is somehow connected to the visuality, is in fact something extremely classic. Let us remind here that in the early European aesthetics, and in particular in ancient Greek terminology, musicality was perceived as the correctness of constructing in relation to the rules, and much evidence for this can be found in the writings of Plato and Strabo Empiricus (cf. Lisecka 2016, 42–43). During Middle Ages, the term *compositor* was used primarily in relation to an architect; this strong association of music and architecture was still alive during the Italian Renaissance (as we know from the writings of Cesare Ripa, Sperone Speroni or Giorgio Vasari), and also in the seventeenth-century German cantors' textbooks *musicus poeticus* is called fabricator or aedificator (Lisecka 2016, 43–44). Thus, as the European history of music developed, this community of music and visual arts was increasingly focused on the construction of a work – *opus absolutum et perfectum*, understood as a perfect work – perfect, that is, fully finished and closed.

Interestingly, in Xenakis' both reflection and compositional works, this utopian dream of *opus absolutum et perfectum* still seems to be vivid. But it has nothing to do with the classical and traditional categories of closure and ending. It's reflected in his passion for a symbol, however, it's not a cultural meaning of a symbol that can be interpreted in a hermeneutical sense, but a symbol as a mathematical sign. "The mathematicians and logicians of the nineteenth century showed us one way when they got rid of verbal mathematics and replaced it with symbolic mathematics" (Xenakis 1985, 87). But, paradoxically, as Sven Sterken points out, Xenakis in his theoretical reflection (which means here primarily *Musique Architecture*) never outlined the precise relationships between architecture and music or mathematics and music (Sterken 2007, 22), and "in his later works, Xenakis' approach has become more pragmatic, using space as a means to articulate the complexity of musical language and enhance the sensuous experience of sound" (Sterken 2007, 22–23). Hence a certain tension in Xenakis' oeuvre, resulting from the relationship between determinism, specific to the serialist understanding of a work of art, and his fascination with Pierre Schaeffer's approach and the concept of *objet sonore* (Grant 2001, 241–242).

One thing seems quite clear, however, about this non-clear relationship between music and architecture: while for ancient theorists, as we know for sure, this relationship was based primarily on the categories of measure/regularity/repeatability/rhythm, for Xenakis, or perhaps rather for researchers and audiences of Xenakis, it has to do with the space and spatiality of

sound. And here we come, again, to immersion itself and immersion as a feature of Xenakis' music. This can be seen very clearly, for example, in the already historical research of Maria Anna Harley, as well as James Harley and Makis Solomos (cf. e.g. Harley 2004, 38; Solomos 2020). Maria Anna Harley quotes Gisèle Brelet and her well-known thesis that it is the present day (cf. in understanding – aesthetics since the 1950s) which discovered the spatiality of sound (Harley 1994, 117).

In our further reflection on the immersion of Xenakis' music, we'll refer to Mark Wolf's ideas and his study, "Beyond Immersion: Absorption, Saturation, and Overflow in the Building of Imaginary Worlds", which was released five years ago. Wolf distinguishes three types of immersion (in the sense we already meant, referring to humanistic studies) namely: a physical immersion; perceptual immersion; and conceptual immersion (Wolf 2017, 204).

The first of these types would refer to the viewer's immersion in the world of the fiction constructed on the basis of the real world and, therefore, requiring a physical entrance into a specific type of room/space. Here Wolf mentions, as an example, the theme park – we could add also escape room. The second one would apply to the audio-visual works such as movie or video game, and the third one would apply to art works, whose world must be conceptualized by recipient himself/herself in his/her individual imagination – as in the case of a novel.

We'll try now to adapt the categories introduced by Wolf in the further part of his text – i.e. absorption, saturation, and overflow – to the musical immersion, which is not taken into account in his considerations.

The concept of *absorption*, which, by the way, was borrowed by Wolf from an outstanding researcher of the fictional worlds and narrativity, Marie-Laure Ryan (from her text *Narrative as Virtual Reality*), is explained as follows:

"As I will use the term here, absorption is a two-way process, unlike immersion. In one sense, the user's attention and imagination is absorbed or "pulled into" the world; [...] we find ourselves "entering" the imaginary world. At the same time, however, the audience also "absorbs" the imaginary world as well, bringing it into mind, learning or recalling its places, characters, events, and so on, constructing (or reconstructing) the world within their imagination [...]. As we are absorbed into a world, we are able to mentally leave, or at least block out, our physical surroundings, to some degree, because details of the secondary world displace those of the Primary World while we are engaged with it." (Wolf 2017, 205)

As we can see, Wolf pays special attention to the two-sided direction of absorption: it results, on the one hand, from the work and its action, but on the other hand – from a kind of willing and voluntary “inclination” of the recipient towards the work. It’s a kind of mutual attraction between the work and the audience. In the case of a purely musical work (instrumental only), we cannot talk about any specific elements of the represented world, in a more or less literal way: absorption can only be result of the structural interaction of the sounds or other structural elements of the music. If the listener’s imagination is triggered, we can possibly superimpose on this sonic construct what comes also from his/her imagination, behind the work itself – kind of image evoked by the music. Does this mean that the absorption into music will be weaker than into cultural texts which can offer us the spectrum of represented worlds? We can initially assume such a hypothesis.

The next idea – *saturation*, a state of full immersion into an art work and its world – Wolf explains as follows: “the pleasurable goal of conceptual immersion; the occupying of the audience’s full attention, concentration, and imagination, often with more detail, nuances, and subtleties than can be held in mind all at once” (Wolf 2017, 206). While this quotation doesn’t seem to require further explanation, it’s still worth noting that Wolf describes the purpose of immersion as “pleasurable”. We will focus on this issue a bit later, in the context of Xenakis example.

An important complement to the Wolf’s theory is the concept of overflow. The researcher explains it as follows:

“An overflow beyond the point of saturation is necessary if the world is to be kept alive in the audience’s imagination. If the world is too small, the audience may feel that they know all there is to know, and consider the world exhausted, feeling there is nothing more to be obtained from it. A world with an overflow beyond saturation, however, can never be held in the mind in its entirety; something will always be left out. What remains in the audience’s mind then, is always changing, as lower levels of detail are forgotten and later re-experienced and reimagined when they are encountered again.” (Wolf 2017, 208)

Now we’ll take a closer look at how the concepts of immersion, which is usually applied to the audio-visual art work and its world, can be also useful for the musical work.

First of all, let us remind that immersion is a two-sided concept: on the one hand, we can talk about the immersion of a musical work itself, but on the other

hand, we have the concrete recipient and his/her mental capacity as well as an orientation towards immersion into the work. Elisavet Kiourtsoglou writes about such works by Xenakis, such as *Interlude sonore*, in which the composer's intention is to create "based on special sound effects and stereophonic technology, [...] a whole-body experience. The audience was meant to experience a series of embodied sensations, like loss of orientation, a sense of immobility or an urge to make sudden movements, a feeling of expansiveness or tightness" (Kiourtsoglou 2022, 162–163).

In such a situation, as described by Kiourtsoglou, we clearly deal with an attempt to replace perceptual or conceptual types of immersion with physical immersion – or, if we want to describe the same problem in semantic categories: an attempt to switch the musical work from its ontological intentional space into actual reality. This seems to have somewhat of an utopian idea. However, after time it turned out to be one of the most important features of the twentieth-century avant-garde vision of music in general. The same researcher points out that a significant number of electronic composers after Varèse and Xenakis turned to immersion as the main goal and foundation of their music (Kiourtsoglou 2022, 165). No wonder, since the idea of immersion is seductive. It seems to be a way of bridging the gap that has been created between the composer and the audience since at least Arnold Schoenberg, and which Milton Babbitt summed up with the title of his essay *Who Cares if You Listen?* (Babbitt 1958, 1305–1311) There is a kind of belief in this new approach that if the music is totally immersive – in the sense of being all-encompassing – it will attract the listener to itself. But this type of immersion presented by Xenakis is actually more like building walls around the listener. Kiourtsoglou seems to point to the same thing when she discusses the Xenakis' score as kind of "spatial score" transferring "culturally significant properties of visual space onto the acoustic imagination" (Kiourtsoglou 2022, 163, 166). Hence, the researcher's interest is focused on the means of creating this spatiality with appropriate signs in the score (Kiourtsoglou 2022, 166–171).

Let's return to our earlier assumption that music has rather low 'tellability', in comparison to the other audiovisual arts. 'Tellability' is a useful narrative term for expressing the ability of some events to be told, in the most interesting way possible. (cf. eg. Georgakopolou, Iversen, and Stage 2022, 153) We can, of course, treat music as a series of events, or "isolated sonic gestures" (Bates, Bridges, and Melvin 2020, 157) but their tellability is still problematic – it is, in fact connected to the long-formulated problem of mimesis, understood in many different ways, which was traditionally a weak point of instrumental music. The nineteenth century

partially released the instrumental music from this odium, but it was precisely by changing the conditions of storytelling through the music (we don't have to depict with the music the actual reality, there are more interesting things to be told) and, paradoxically, shifting the music even closer to the visual arts – instead of poetry (earlier metaphor “poetry and music are two sisters”). Paradoxically, the entire later Modernistic and twentieth-century avant-garde, mentioned by Kiourtsoglou, could have risen exactly from this nineteenth-century shift, despite the fact that the avant-garde movement settled itself in a gesture of rebellion against German expressive romanticism.

As it was said before, the immersion of Xenakis, even if we call it total immersion – but total, in the sense of immersive sound – refers, to a particular extent, to the architectural works. Hence it follows composer's inclination towards physical type of immersion. Architecture, like sculpture, is particularly strongly – in the terms of ontology – related to the actual reality and actual type of space. But this kind of immersivity of the work provides certainly the first level of immersion into it; the level, which is called by Wolf “absorption”, which embraces (on the part of listener) running the attention and imagination, but also (on the part of the work/composer) guiding the recipient through all sound events, through presenting them in a specific order, and encouraging the recipient to temporarily “letting down” the outside world (also called by Wolf Primary World). As Sterken writes “abstract morphological sound patterns such as geometric shapes and surfaces can be articulated in space and recognized by the ear.” Sound is here no longer only a carrier of musical expression, but a means to expand the boundaries of architecture through the creation of immaterial and dynamic spaces” (Sterken 2007, 38).

The listener is thus transported “inside” the sound structure and, as in the case of communing with architecture, views individual “aesthetic events” in a specific order. But from a certain perspective, he can also see them in a broader, sometimes even holistic, perspective – as if in one glance.

We could ask a question as follows: is it possible to immerse also into the score, without listening to the actual music? And Wolf would answer that this is exactly this conceptual type of immersion, so, yes, it's theoretically possible. But how deeply introduced to Xenakis' world we would have to be to understand the tellable concept of his works only with looking at the score? (i.e. Terretektorh, Nomos Gamma).

Let us consider the next stages of the immersion process distinguished by Wolf, i.e. saturation and overflow. As we can see, the ultimate goal of immersion is fully aesthetic: delving into the fictional world is, first, to decode as many intricately

presented elements as possible and, second, to replace with them actual reality, so that the recipient doesn't feel the need to "emerge" from immersion.

This goal is well known in game studies (not only computer games, but e.g. RPG) or the phenomenon of binge watching. We know, however, that Xenakis' goal in his music was something else, namely: "interpretation of music as «a matrix of idea», or, in other words, «human intelligence in a particular state of crystallization.» In his view, music is not made to please, but ought to serve as «a catalyst for reflection and a means of self-realisation»" (Sterken 2007, 39). This formula of Sterken, "a matrix of idea", also refers us to a certain type of storytelling model – a dystopian story about gaining awareness of the limitations and deceptions to which we are subject from the part of our own minds.

Though, the assumption that by immersing ourselves in Xenakis' composition we are taken into the depth of the complicated processes of our own thinking would be far overcomplicated. After all, it is extremely sensual music. However, the more complicated and detailed elements of the composition, which are revealed to the viewer at so-called "saturation" level, will be more noticeable in the score than during listening process. At this level, it becomes clear that the avant-garde principle of non-egalitarianism and allowing only selected recipients to be immersed, or deeply immersed, it is very actual.

What seems to be especially interesting in the case of music is the final level of immersion, which is called by Wolf "overflow". As we remember, it bases on re-experiencing and re-imagining what has been assimilated from a series of previously experienced "events" – or, simply speaking, what stays in the memory of the recipient and can become a re-resource of aesthetic impressions again and again, even after the end of communing with the world of the artwork.

3. Conclusion

In the case of the art, the essence of which is to reach the listener with matter as sensual and fleeting, at the same time, as sound? On the conceptual level, this kind of keeping immersion in mind – "overflowing" – is served, to a certain extent, by the idea of polytope as a multimedia installation that includes light, sound and architecture (Sterken 2001, 262). The very idea of introducing the concept of polytope as a carrier of multimedia and intertextuality arises from the fact that sound is easier to be remembered when it becomes part of a semantic structure.

The issue, mentioned by Wolf, of the richness of elements of the presented world and the impact this richness has on the recipient, seems to be very important here. It is precisely what the work leaves behind even after escaping/leaving the immersion. And in this case, the world of Xenakis' music and the language he expresses himself is so complicated, that this level of immersion ("saturation") seems to be entirely realized. It is a type of music that encourages the listener to go beyond it and stimulates our immersive memory. Of course, immersive memory is not the same as research, but it is the starting point for what we are all doing here, trying to find all the time more and more in Xenakis, and never getting enough with that.

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